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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,338	06/10/2005	Stephen Herman	US020566	1593

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EXAMINER
SHIKHMAN, MAX

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/538,338	HERMAN ET AL.
	Examiner	Art Unit	
	Max Shikhman	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _10 June 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-21_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _10 June 2005_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _06/10/2005_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because of empty boxes. Please fill in empty boxes

in Fig 1,2,4,5,6. Try not to sloppy-handwrite, but type using a word processor.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement

drawing sheet should include all of the figures appearing on the immediate prior version

of the sheet, even if only one figure is being amended. The figure or figure number of an

amended drawing should not be labeled as "amended." If a drawing figure is to be

canceled, the appropriate figure must be removed from the replacement sheet, and

where necessary, the remaining figures must be renumbered and appropriate changes

made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the

remaining figures. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1,11 rejected under 35 U.S.C. 102(b) as being anticipated by Digital

Image Processing, Rafael C. Gonzalez, Addison-Wesley, Pub. Date: November 2001,

ISBN-13: 9780201180756.

() **Regarding Claims 1,11**:

A method for adaptively segmenting pixel elements (from the entire image) *in an image*

frame comprising the steps of:

segmenting (P613 last line, "segment the regions of weld failures".) *pixel*

elements (Fig 10.40) *into at least one first region* (Fig 10.40b. P614 "seed regions")

based on a selection criteria; (P614: "pixels having values of 255")

refining (P614. "region growing") *said selection criteria* (255 threshold) *based on*

information (Fig10.41. P614 "gray level difference...less than 65...based on...Fig10.41")

associated with each of said pixel elements within an associated first region; (Fig

10.40b. Includes the entire image.)

and segmenting (Fig 10.40c) *said image pixel elements* (from the entire image as

in preamble) *into at least one second region* (Fig 10.40c) *based on said refined*

selection criteria. (P614 middle paragraph, Gray level difference less than 65 and "8

connected.")

(Fig 10.40c shows an improvement in pixel segmentation, region growing, from Fig

10.40b)

() **Regarding Claim 21**:

The system as recited in claim 11, further comprising: means for receiving said pixel elements from at least one input source. (P614 Fig 10.40 is an X-ray image received.)

All other elements are addressed with regard to Claim 1.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims **2,12; 3,13; 4,17; 5,15; 6,16; 7,14;** rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez in view of Edmond Chalom, Segmentation of an Image Sequence Using Multi-Dimensional Image Attributes (Proceedings ICIP-1996).

() **Regarding Claims 2,12:**

Gonzalez discloses everything as described above except, t*he method as recited in claim 1, wherein said selection criteria is a probability function determined in association with a probability function selected from the group consisting of: color, textual, and position.*

Chalom discloses, *a probability function* (P526 col1, "PDF MODELING") *determined in association with a probability function* (PDF. P525: P(Ri|f) *selected from the group consisting of: color, textual, and position.* (P525 col2, "texture, color, position". P526 col2 last line. P527 col1)

(P526 col1, "the multi-dimension feature vector is known at each sample point of the original image the next step ... is to model the probability density function (PDF) of each feature vector". P527 col1, "The features used for this segmentation include position, color, ... texture...")

As Chalom says, it is desirable to use multidimensional attributes—position, color, texture—in a probability function, P527 top formula, to segment an image into regions corresponding to objects. Segmenting by position, color and texture, allows an accurate segmentation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Chalom's method in Ganzalez. Segment welds in Gonzalez's Fig 10.40 also based on PDF of color, texture, position. This improves the accuracy of Gonzalez' segmentation.

() **Regarding Claims 3,13**:

The method as recited in claim 2, wherein said positional probability function is associated with a known portion of said image (210).

(Chalom. P525 col2, "row and column positions at each pixel, can also be used as features". P526 col2, "position value at the corresponding location.")

() **Regarding Claim 4,17**:

The method as recited in claim 3, wherein said known image portion is associated with an upper half of said image.

(Chalom. P525 col2, "row and column positions at each pixel, can also be used as features". P526 col2, "position value at the corresponding location." Position can include top portion.)

() **Regarding Claims 5,15**:

The method as recited in claim 2, wherein said color probability function is associated with the group comprising: color, luminosity in the YUV domain. (P525: YUV, color. P527 "The features used for this segmentation include ... color, luminance.")

() **Regarding Claim 6,16**:

The method as recited in claim 2, wherein said textual probability function (p527 top formula $p_F(f)$. Vector f includes texture.) *is associated with a group of adjacently located pixel elements.* (image data)

(P525 col2, "estimate texture information using local statistics on luminance values or other techniques such as SAR, ...which depend only on the raw image data.")

() **Regarding Claim 7,14**:

All limitations of Claims 7,14 are addressed with respect to claims 1-3.

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6.   Claims **8,18; 9,19; 10,20;** rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez in view of Edmond Chalom as applied to claim 2 above, and further in view of Ii, "Sequential classifier for use in pattern recognition system", PGPUB-DOCUMENT-NUMBER: 20040042666.

() **Regarding Claim 8,18**:

Chalom discloses, *The method as recited in claim 2, wherein said step of refining said selection criteria comprises the steps of:*

determining a threshold criteria associated with each of said selected probability

functions; (Chalom. P527 choose biggest P(Ri|f̲), which is MAP.)

identifying said pixel elements satisfying said threshold criteria;

(Chalom. P526 col2 "4.CLASSIFICATION")

Gonzalez and Chalom disclose everything as described above except,

determining an updated probability function for each of said selected probability

functions based on said identified pixel elements; and determining said refined selection

criteria in conjunction with said updated probability functions.

li discloses updating probability functions in [0030], [0056], [0062].

As li discloses, it is desirable to update the priori probabilities after data

identification, [0026] "a priori probabilities are initialized during training and updated by

recording the output 34 of the complex classifier 16". This enhances the classifier.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to use li's method, update probability functions based on the output of

classifier, in Chalom's classifier to enhance classification precision.

() **Regarding Claims 9,19**:

The method as recited in claim 8, wherein said threshold criteria [Page 527:

P(Ri|f̲)] *is a known factor of said selection criteria.* (Chalom. P527 choose biggest

P(Ri|f̲), which is MAP. MAP is known.)

() **Regarding Claims 10,20**:

10. The method as recited in claim 9, wherein said known factor is based on said

selected probability distribution. [Page 527, top formula, $p_F(f̲)$]

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Max Shikhman whose telephone number is (571) 270-1669. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINGGE WU can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Max Shikhman
10.25.2007

JINGGE WU
SUPERVISORY PATENT EXAMINER